more soluble the phosphate the tougher and more elastic the gluten, and a tough, elastic gluten holds the loaf in shape as it expands in the oven and prevents the small bubbles of gas running together into large holes and spoiling the texture.

MEASURING TURBIDITY.

These facts suggest at once a method for estimating the shape and texture of a loaf which can be made from any given sample of wheat. An analysis showing the amount of soluble phosphate in the sample should give the desired information. But unfortunately such analysis is not an easy one to make and requires a considerable quantity of flour. In making these analyses it was noticed that when the flours were shaken with water to dissolve the phosphate, and the insoluble substances removed by filtering, the solutions obtained were always more or less turbid, and the degree of turbidity was found to be related to the amount of phosphate present and to the shape of loaf produced. On further investigation it was found that the turbidity was due to the fact that the concentration of acid and salts which make gluten coherent also dissolve some of it, and gluten, like other colloids, gives a turbid solution. It was also found that the amount of gluten dissolved, and consequently the degree of turbidity, is related to the shape of the loaf. Now it is quite easy to measure the degree of turbidity by pouring the solution into a glass vessel below which a small electric lamp is placed and noting the depth of the liquid through which the filament of the lamp can just be seen. The turbidities, however, were so slight that it was found necessary to increase them by adding a little iodine solution, which gives a brown milkiness with solution of gluten, the degree of milkiness depending on the amount of gluten in the solution.

THE METHOD.

The method is as follows: One gram of flour is weighed out and put into a small bottle. To it is added 20 cc. of water. The bottle is then shaken for one hour. At the end of this time the contents are poured into a filter. To 15 cc. of the solution 1½ cc. of a weak solution of iodine is added, and after standing an hour the turbidity test is applied. Working in this way, it is possible to see through only 10 cc. of the solution thus obtained from such wheat as Red Fife, as compared with 25 cc. in the case of Rivet. Other wheats yield solutions of intermediate capacity.

Corn Oil.

L. E. Sayre.

Corn oil is defined by the United States Government as "the edible oil obtained from the germ of corn, maize (Zea Mays L.) (Food Inspection Decisions 169). Of this oil there was manufactured in the United States in the year 1916 (later figures are for the moment not available) approximately eighty-two million pounds. As this oil is a by-product from the corn starch and similar industries, it can be manufactured and sold more cheaply than can those vegetable oils which are primary products of manufacture.

Certain physical and chemical properties of this oil have commended it to us as a substance which might well find a place in our dietary. In appearance it is pleasing. It contains little or none of the products which cause oils to become rancid quickly, so that its keeping qualities are excellent. It has a very low melting point, while at the same time it has a high smoking point, as compared with some other materials in common use. For example, lard smokes at 350° F., refined cottonseed oil at 500° F. and corn oil at 600° F., while corn oil has the lowest melting point of the three. Refined corn oil has been used both as a food and in hospitals as a substitute for olive oil, and has been pronounced superior to the latter. As a food this oil is used as a salad dressing, as shortening in bread and cracker baking, and as an ingredient of oleomargarine and lard substitutes.

The writer has devoted considerable study to this oil in its various food relations, and in a paper presented before this Academy last year pointed out some of its qualities which would indicate that it would prove a valuable addition to our dietary. Since that time further experiments have been made by the writer, and additional reports have been obtained from housekeepers who have tested it.

The data obtained during the past year bear out the earlier conclusions concerning this oil. As a salad oil the refined corn oil is superior both to olive oil and to refined cotton seed oil, many persons finding it the more palatable of the three. When used in a salad dressing, such as mayonaise, it emulsifies with the egg more easily than do these oils, and so is better adapted to this use. It has also been found to be superior to these oils in its digestibility. Other investigators have pronounced it high in nutritive value, declaring that it contains a very high amount of those necessary bodies known as vitimines. The writer, then, feels that his former conclusions are fully substantiated and that this oil is now proven to be worthy of a permanent place in our dietary. One difficulty in its earlier introduction into general use has been the fact that the manufacturers have sold it only in barrel lots. Now two firms are placing on the market under their trade names refined corn oil suitable for domestic use.

Current price to retailers, 2 dozen pints, $7.50; 1 dozen quarts, $7.

Aqueous Loess.

(Abstract.)

J. E. Todd.

If one includes in the definition of loess that it is of eolian origin, our subject expresses an absurdity, but if the term is still to be employed in its original sense, it should imply certain physical characters without regard to the way in which they have been produced. Typical loess is generally recognized as being a light, yellowish gray or buff silt of impalpable fineness, having, when dry, the rigidity of rock without its hardness, and when thoroughly wet a plasticity which causes it to creep and fault and to show prevalent columnar jointing. Some would confine the term to Quaternary deposits, and that is usually the usage.